

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 36.

April, 1934.

No. 424.

ANTENNARIA OF ARCTIC AMERICA¹

M. O. MALTE

(Plate 281)

WHILE the *Antennariae* of Southern Canada, Newfoundland and the United States have been studied intensively and critically, particularly by Greene and Fernald, the forms of the arctic parts of the continent have so far attracted little attention. This is not surprising when it is taken into consideration that collections in the past have been largely made by casual visitors, often without any botanical training whatever. As a result, the earlier collections of arctic *Antennariae* are often very scanty, often badly collected, and frequently mixed, thus offering little attraction and generally great difficulties to the investigator studying them in herbaria. To base conclusions and new species on scanty and otherwise imperfect specimens serves really no good purpose, and the writer has therefore refrained from bothering with such material. The arctic American material investigated is that of the Gray Herbarium, Cambridge, Mass., the United States National Herbarium, Washington, D. C., the Herbarium of the New York Botanical Garden, New York, the Herbarium of the Academy of Natural Sciences, Philadelphia, Pa., as well as that of the National Herbarium of Canada, Ottawa.

¹ Published with the permission of the Director, National Museum of Canada, Department of Mines, Ottawa.

This monograph formed part of the Flora of Arctic Canada in course of preparation by Drs. M. O. Malte and C. H. Ostenfeld, an important work left unfinished by the lamentable and untimely death of Ostenfeld in 1931 and of Malte in 1933. The labels of specimens and other internal evidence indicate that the manuscript on *Antennaria* was prepared by Malte, after the death of Ostenfeld.—EDS.

DOES *A. alpina* (L.) GAERTN. OCCUR IN NORTH AMERICA?

In order to ascertain if true *A. alpina* (L.) Gaertn., as some authors maintain, really occurs in North America, and particularly in the arctic parts, where of course it is more likely to be found than in any other section of the continent, the writer has examined the Linnean specimens, lying under the name of *Gnaphalium alpinum*, in the Herbarium of the Linnean Society, London. There are two sheets, both marked in the handwriting of Linnaeus. One of the sheets, No. 70, has only the name *alpinum* inscribed on it. The other, No. 71, has in addition H. U. (Hortus Upsaliensis) and Lapp. (Lapponia). The specimens on both sheets are identical but, as No. 71 has the fullest information, it should be considered the type.

The type (PLATE 281) is a pleicephalous plant with basal rosettes borne on well developed stolons; their leaves are narrowly spathulate, mucronate, green and glabrous above, silky flocculose-tomentose and silvery-lustrous underneath. The inner bracts of the involucre are about 7 mm. long, linear-lanceolate, long-attenuate, light brown.

With the type thus precisionized it has been easy to ascertain that true *A. alpina* does not occur in North America. At least, the writer has seen no specimens matching the type.

The description of *A. alpina* given by Britton & Brown (Ill. Fl. 3. 449) clearly indicates that their *A. alpina* embraces more than one element. What Rydberg's (Fl. Rky. Mts. ed. 2: 916) *A. alpina* is, can only be determined after an examination of the specimens so labelled by him. Similarly, to speculate over what Simmons' (Phytogeography, 127) *A. alpina* is, is futile. Only an examination of the specimens cited by him, can settle the question.

Fernald asserts that typical *A. alpina* occurs in arctic America, south to Kangalaksiorvik Bay, Labrador (*Owen Bryant*), etc. The Bryant plant is *A. angustata* Greene.

A note by Greene concerning the occurrence of *A. alpina* in North America has apparently been overlooked, or else no attention has been paid to it. Greene writes (*Pittonia*, 3, 1898, 284) that *A. alpina* "is not known to occur on the North American continent, unless perhaps a sheet of specimens (n. 11239) in Canadian Survey collection, said to have been obtained on the Arctic sea coast by Dr. Richardson, may represent it." The specimens referred to do not belong to *A. alpina*. They belong to *A. angustata* Greene or a species closely related to it.

KEY CHARACTERS

When Greene wrote his paper, entitled "Some northern species of *Antennaria*" (Pittonia, **3**, 1898, 273–289), he had at his disposal the entire collection of *Antennaria* belonging to the National Museum of Canada—then called the Museum of the Geological Survey of Canada. In this paper he divides the genus into two groups, as follows:

1. Tips of involucre bracts white or pink.
2. Tips of involucre bracts brownish or dark brown.

Fernald (RHODORA, **26**, 1924, 96–97) also lays particular stress on the colour of the bracts and uses this character as one of the leading ones in his key.

When working up the Canadian arctic material, the writer found the colour character somewhat unsatisfactory. This is particularly the case in *A. pygmaea*. In this species the tips of the inner bracts vary from white to stramineous and, if the species is arranged in the key according to colour of the bracts, it may sometimes be placed in one group and sometimes in another. The writer has therefore substituted the shape of the inner bracts for the colour, and has found this arrangement working smoothly. *A. isolepis* and *A. pygmaea* then fall into one group and *A. canescens* down to and including *A. hudsonica* into another.

An important character is the presence or absence of procumbent stolons. When such are present, more or less extended mats are formed; when they are absent, the individual plants grow separately. This is an excellent character in the field. When one has to deal with scrappy and haphazardly collected specimens, such as are often found in herbaria, the character is, of course, not so good, but that in no way detracts from its inherent value. It only emphasizes the fact that *Antennarias*, to be of real value as herbarium specimens, should be collected with extreme care and that, when the collections are made, field notes indicating the mode of growth should, whenever possible, be taken.

A third set of characters, which at first did not seem very promising, has turned out to be of considerable value. These characters are monocephalism and pleiocephalism. In normally monocephalous species, such as *A. pygmaea*, *A. burwellensis*, *A. angustata*, and *A. hudsonica*, specimens are found in which more than one head occur. At first glance this fact appears to diminish the value of monocephala-

lism and pleiocephalism as key characters considerably or even nullify it altogether. But this is really not the case. The apparent pleiocephalism is in reality only pseudo-pleiocephalism. In real pleiocephalism the several heads are arranged in a corymb without any bracts subtending the branches. In the case of pseudo-pleiocephalism the supernumerary heads emerge from the axis of the uppermost stem-leaves. Their pedicels are often much more slender than the top of the stem bearing the normal head, and their heads are very often overtopping the normal one. A beautiful example of such pseudo-pleiocephalism is furnished by *A. ungavensis* (page 110) which normally is monocephalous but frequently develops an extra head from the axis of the uppermost stem-leaf. This supernumerary head is borne on a very slender, almost filiform, pedicel up to 2.5 cm. long, and is much over-topping the normal head.

SYNOPSIS OF ANTENNARIA IN ARCTIC AMERICA

- a. Basal leaves 4 cm. long or more, generally 3-nerved....1. *A. pulcherrima*.
- a. Basal leaves at most 2 cm. long, always 1-nerved....b.
- b. Rosette-leaves very sparsely pubescent underneath; stem glabrous.....2. *A. nitens*.
- b. Rosette-leaves densely pubescent underneath; stem pubescent; pappus-bristles of male flowers clavellate-dilated....c.
- c. Involucre 4-5 mm. high; Bering Sea species....d.
- d. Monocephalous; rosette-leaves glabrous above.3. *A. monocephala*.
- d. Pleiocephalous; rosette-leaves tomentose on both sides.....4. *A. alaskana*.
- c. Involucre about 6 mm. high or more, only female plant known....e.
- e. Inner bracts of involucre obtuse or only slightly acutish....f.
- f. Mature rosette-leaves densely white-tomentose on both sides; heads several, generally in an open corymbiform inflorescence.....5. *A. isolepis*.
- f. Mature rosette-leaves green, glabrous or glabrate above; heads normally solitary.....6. *A. pygmaea*.
- e. Inner bracts of involucre sharply acute to long-attenuate....g.
- g. Basal rosettes borne on normally well developed, prostrate or ascending stolons....h.
- h. Normally pleiocephalous....i.
- i. Involucre bright green below, dark brown above.7. *A. canescens*.
- i. Involucre inconspicuously green below, light brown above.....8. *A. arenicola*.
- h. Normally monocephalous....j.
- j. Middle bracts of the involucre linear-lanceolate9. *A. Sornborgeri*.
- j. Middle bracts of the involucre broadly lanceolate to ovate-lanceolate.....10. *A. burwellensis*.
- g. Basal rosettes sessile or subsessile, erect or suberect....k.
- k. Tomentum of the mature rosette-leaves equally dense on both surfaces; pleiocephalous....l.

- l. Rosette-leaves spathulate, rounded at apex; pappus white....m.
- m. Tomentum white; inner bracts broadly lanceolate, generally abruptly contracted toward the acute apex.....11. *A. compacta*.
- m. Tomentum greyish; inner bracts linear-lanceolate, acuminate to attenuate.....12. *A. subcanescens*.
- l. Rosette-leaves narrowly oblanceolate, gradually contracted toward the acute apex; pappus sub-rufescent.....13. *A. labradorica*.
- k. Tomentum of the mature rosette-leaves in age becoming much sparser on the upper surface than on the lower, or wanting....n.
- n. Normally pleiocephalous.....14. *A. congesta*.
- n. Normally monocephalous....o.
- o. Involucral bracts generally olivaceous, the middle ones lanceolate to ovate-lanceolate, acute.....15. *A. angustata*.
- o. Involucral bracts generally light brown, the middle ones, like the innermost ones, linear to linear-lanceolate, long-attenuate....16. *A. hudsonica*.

1. *A. PULCHERRIMA* (Hook.) Greene, Pittonia, **3**, 1897, 176. *A. carpathica* var. *pulcherrima* Hook., Fl. Bor.-Am. **1**, 1834, 329, Macoun, Cat. Can. Pl., pt. 2, 1884, 237. *A. carpathica*, Macoun, l. c., 236, non Bluff & Fing. *A. lanata* (Hook.) Greene, Pittonia, **3**, 1897, 288. *A. sp.*, Ostenfeld, Gjoa Exp. Kristiania Vid. Selsk. Skr., 1910, 67.—The whole plant white-tomentose; stem 1–5 dm. high, from a subterranean, branching caudex; radical leaves oblanceolate, acute, 4–12 cm. long, 3-nerved or, in dwarfed specimens, 1- or 2-nerved; cauline-leaves linear; heads several, in a corymb; involucre 5–7 mm. high; the outer bracts more or less dark coloured below, the inner white to umber at tip; those of the pistillate heads lanceolate to linear-lanceolate, acute to long-attenuate; those of the staminate heads elliptic, obtuse; pappus bristles of the male flowers clavate; style long-exserted, 2-cleft.—QUEBEC: No. 116,979, Richmond Gulf, east coast of Hudson Bay, W. Spreadborough, July 1, 1896. YUKON TERRITORY: King Point, *A. Lindström*, 1906 (Oslo).

When Greene raised Hooker's *A. carpathica* var. *lanata* to specific rank, his main reasons for doing so were that "the radical leaves in *A. lanata*, as compared with those of *A. pulcherrima* are small and nerveless (the italics are mine); the tips of its involucral bracts in the male are broad, obovate, and very obtuse, while in the female the herbaceous body of the bract is greatly narrowed and elongated, and with a narrow white tip."

All the four specimens cited by Greene are in the National Herbarium of Canada. A close examination of the largest radical leaves reveals that in one of the specimens they are 1-nerved, in another 1–3-nerved, and in the two others 3-nerved, as in *A. pulcherrima*. The only difference is that in *A. lanata* they are hidden by the tomentum but, when the latter is removed, the nerves become quite plain.

As far as the shape and colour of the involucral bracts are concerned,

the writer is unable to detect any essential difference between *A. pulcherrima* and *A. lanata*. The latter, in the writer's opinion, is merely an ecological form or at most a variety of the former.

2. *A. NITENS* Greene, *Ottawa Nat.* **25**, 1912, 42.—About 1 dm. high; basal rosettes erect, sessile or subsessile; their leaves about 1 cm. long, spathulately oblanceolate, mucronate, vividly green and glabrous above, minutely and sparsely silky underneath; cauline leaves linear, glabrous, all tipped with a flat, glabrous, scarious, elliptic appendage about 2 mm. long; stem glabrous; heads solitary; involucre 6–7 mm. high, the bracts glabrous or nearly so, oblanceolate, with a dull brown, acute or acuminate, and serrulate tip. Pappus bristles strongly barbellate from below the middle to near the summit. Only the female plant known.—NORTHWEST TERRITORIES, KEEWATIN: No. 79,269. Wager Inlet, northwest coast of Hudson Bay, Lat. 65° 15' N., *J. M. Macoun*.

3. *A. MONOCEPHALA* DC., *Prodr.* **6**, 1837, 269.—Dwarf, about 10 cm. high or less, often forming large mats, basal rosettes short, erect or suberect, their leaves spathulate, on the average about 10 mm. long and 3 mm. wide, mucronate, floccose-tomentose below, green and glabrous above; cauline leaves 5–6, linear, loosely lanate, their tips with a flat, scarious, glabrous, brown appendage about 2 mm. long; stem loosely lanate; heads solitary; involucre 4 mm. high, the bracts dark brown to almost black in the middle, olivaceous to golden buff at tip, inner bracts of the pistillate heads linear-lanceolate, acuminate; those of the staminate heads elliptic, obtuse or acutish; corolla of the pistillate flowers about 0.2 mm. wide, that of the staminate flowers 0.6–1 mm. wide; pappus-bristles of the male flowers clavate; style long-exserted, 2-cleft.¹—ALASKA: Cape Nome, summer, 1910, *H. E. Blaisdell* (Gray); No. 1896, Vicinity of Port Clarence, Aug. 22, 1901, *F. A. Walpole*; vicinity of Port Clarence, Aug. 12, 1901, *F. A. Walpole*.

It has been maintained by some authors that *A. monocephala* DC. occurs in Arctic Canada, Labrador, and Greenland. To settle if that really is so, the writer has endeavoured to ascertain what the true *A. monocephala* of DeCandolle is. Through the good offices of Dr. F. T. Wahlen and Dr. W. Koch, Zurich, Switzerland, the information has been secured from Dr. A. Becherer, Assistant, Conservatoire Botanique de la Ville de Genève, that in DeCandolle's herbarium there are four collections of *A. monocephala* DC. made prior to 1837, the year the species was described. Three of these are by DeChamisso, one collected in 1825 and two in 1831, and one by Fischer, collected in

¹ Description drawn from field No. 154, Glacier River, Unalaska, *Edwin C. Van Dyke*, July 21, 1907 (two male individuals), and specimens from Cape Nome, Alaska, *H. E. Blaisdell*, Summer 1900 (five female individuals). Both collections are in the Gray Herbarium.

1828, both cited as collectors of the original *A. monocephala* (DeCandolle, Prodr. 6, 1837, 269).

When seeking information about *A. monocephala* in DeCandolle's herbarium, the writer inquired if there was a specimen there which should be considered the type of the species and asked, if there was, to be supplied with a photograph of it. For reply, Dr. Becherer has kindly furnished an excellent and much appreciated photograph of the sheet holding de Chamisso's 1825 collection, made in Unalaschka. This, being the first collection of *A. monocephala* DC., should therefore be considered the type.

A. monocephala DC. is entirely different from any of the *Antennariae* so far known from arctic Canada and adjacent parts of Labrador, and references to its occurrence there are due to misinterpretation of the species. A collection in the Gray Herbarium from Labrador, near Hebron, Lat. $58^{\circ} 17'$, no date, collector Mentzel (ex herb. J. Steetz), consisting of three specimens, has a label marked "Syn. Fl. N. Amer." One of the three individuals is called *A. alpina* de Cand. var. *monocephala*. It is a monocephalous form of *A. canescens* (Lge.) Malte.

Porsild maintains (Medd. Groenl., 51, 1915, 271) that *A. monocephala* DC., considered as a synonym of *A. alpina* var. *Friesiana* Trautv., occurs in Greenland. This is exceedingly improbable. A collection from the southern district of Egedesminde, at Giesecke's Lake, Lat. $67^{\circ} 44'$, July 31, 1924, by A. E. Porsild, labelled *A. alpina* var. *monocephala*, is *A. angustata* Greene.

A. monocephala DC. is a Siberian and northwest North American plant, apparently common in the Aleutian Islands and extending as far north as Port Clarence, Alaska, and perhaps still farther. Forms, either identical with it or closely related, have also been collected in northern British Columbia, e. g. by Mrs. Norman Henry, 1932 (Herb. Acad. Nat. Sci., Philadelphia).

4. *A. alaskana*, n. sp. Planta nana, 3–6 cm. alta; sarmentis brevibus, erectis vel suberectis; foliis radicalibus anguste spathulatis, ad 1.6 cm. longis, ca. 3 mm. latis mucronatis, utrinque dense tomentosis; foliis caulinis paucis, ca. 3–4, linearibus, laxe lanatis, apice plano scarioso glabro 1.5–2.5 mm. longo; caule laxe lanato; capitulis 3 dense aggregatis subsessilibus; involucri ca. 4 mm. alto; squamis basin versus furvis apice subfuscis, eis capitulorum fertilium lanceolatis acutis, eis capitulorum sterilium ellipticis obtusis, corolla rosea apice purpurea; pappo florum sterilium plus minus clavato; stylo valde exserto apice profunde bifido.

Dwarf, 3–6 cm. high; basal rosettes short-peduncled, erect or

sub-erect, their leaves narrowly spathulate, up to 1.6 cm. long and about 3 mm. wide, mucronate, densely appressed-tomentose on both sides; cauline leaves 3-4, linear, loosely lanate, their tips with a flat, scarious, glabrous, brown appendage 1.5-2.5 mm. long; stem loosely lanate; heads 3, densely clustered, subsessile; involucre about 4 mm. high, the bracts dark brown at the middle, brown to golden buff at tip; inner bracts of the pistillate heads linear lanceolate, acuminate; those of the staminate heads elliptic, obtuse; corolla of the pistillate flowers about 0.2 mm. wide, that of the staminate flower about 1 mm. wide, rose-coloured below, purplish above; pappus-bristles of the male flowers slightly clavate; style long-exserted, deeply 2-cleft.—ALASKA: Near Port Clarence, field No. 1496, *F. A. Walpole*, July 20, 1901. TYPE (herb. Gray), sub nomine *A. monocephala* DC.

This species is closely related to *A. monocephala* DC. and has, like the latter, both male and female plants, whereas in all arctic American species except *A. pulcherrima*, only pistillate specimens have been observed. Like *A. monocephala*, *A. alaskana* is characterized by conspicuously small heads, a character easily separating the two from all other arctic American species of *Antennaria*.

Besides being pleiocephalous, *A. alaskana* differs from typical *A. monocephala* in having the rosette-leaves densely tomentose on both sides. In the true *A. monocephala* they are tomentose on the lower surface only.

5. *A. ISOLEPIS* Greene, *Ottawa Nat.* **25**, 1911, 41.—About 1-1.5 dm. high; basal rosettes well developed, procumbent, their leaves up to about 12 mm. long, oblanceolate, mucronate, tomentose on both surfaces, more densely so underneath; cauline leaves numerous, linear-lanceolate, loosely floccose-tomentose, the lowermost mucronate, the middle and upper with a narrowly elliptic, flat, scarious appendage about 2 mm. long; stem floccose-tomentose; heads several; involucre 6-7 mm. high; inner bracts with an oblong, pale brown to whitish, obtuse or slightly acutish tip. Only the female plant known.—LABRADOR: Okkak, ex. Herb. *John Ball*, 1890 (neither date nor collector; No. 83a, Port Manvers, Aug. 11, 1900, *E. B. Delabarre*; No. 421, Head of Nachvak Bay, Aug. 17, 1926, *R. H. Woodworth*; No. 155, Ramah, July 15-Aug. 20, 1894, *A. Stecker*; No. 422, Head of Ryan's Bay, Aug. 24, 1926, *R. H. Woodworth*; No. 592, Cape Harrigan, Aug. 12, 1928, *H. Bishop*; Kikkertaksoak, Saglek Bay, Aug. 10, 1931, *E. C. Abbe*. (All in Gray). Saglek Bay, Aug. 23, 1925, *R. A. Bartlett*.¹ NORTHWEST TERRITORIES, KEEWATIN: No. 79,270, Cape Eskimo, west coast of Hudson Bay, Lat. 61° 5', *J. M. Macoun*; upper Maguse River, about Lat. 62° 40', Long. 95° 10', 1932, *W. Gussow*; Kingaryuaik, Lat. 61° 50', Long. 95° 24', 1932 *W. Gussow*. MANITOBA: Long Point, Lat. 59° 21', Long. 94° 40', 1932, *W. Gussow*.

¹ The Labrador localities are all in the Torngat Region.

6. *A. PYGMAEA* Fernald, *RHODORA*, **16**, 1914, 129. *A. carpathica* Gray, Syn. Fl. N. Am. **1**, 1884, 232 (Labrador plant), non (Wg.) R. Br.—From 3 cm. to about 1 dm. high; basal rosettes short, erect or suberect; their leaves oblanceolate, mucronate, from 8 to about 15 mm. long, 2.5–3.5 mm. wide, glabrous or glabrate above, loosely tomentose beneath; cauline leaves linear-oblanceolate, glabrous or glabrate above, lanate beneath, tipped with a flat, glabrous, scarious, deltoid appendage 1.5–2 mm. long; heads normally solitary; involucre 6–7 mm. long, innermost bracts with an oblong, obtuse, white to stramineous tip. Only the female plant known.—LABRADOR: (ex Herb. J. Gay, *Fratres Moravic.*); Okak, Weiz; No. 419, Razorback Mt., Ryan's Bay, Aug. 25, 1926, *R. H. Woodworth*; No. 420, Head of Nachvak Bay, Aug. 17, 1926, *R. H. Woodworth*; No. 558, Valley of the Twin Falls, Cape Mugford Peninsula, July 17, 1931, *E. C. Abbe*; No. 559, Rowsell Harbour, July 20, 1931, *E. C. Abbe*; No. 560, "K" River, Kangalaksiorvik, Lat. $59^{\circ} 18'$, Long. $63^{\circ} 45'$, July 22, 1931, *E. C. Abbe*; No. 561, Base of "K-2," north side of Komaktorvik, July 24, 1931, *E. C. Abbe*.¹ (All in Gray). QUEBEC: Nos. 120, 111, 120, 108, Port Burwell, Hudson Strait, July 25–28, 1928, *M. O. Malte*.

7. *A. canescens* (Lge.), n. comb. *A. alpina* (L.) Gaertn. β . *canescens* Lge. Fl. Dan., **16**, fasc. xlvii, 1869, tab. 2786, fig. 1.—Plant up to 1.5 dm. high; basal rosettes borne on normally well developed, prostrate or ascending stolons; their leaves up to about 1.5 cm. long, spathulately oblanceolate, acute, densely permanently and grayishly appressed-tomentose on both sides; cauline leaves linear-lanceolate, less tomentose than those of the stolons, the middle and upper with a glabrous, scarious appendage; heads normally 3, in a dense corymb; involucre 7–10 mm. high, lanate and green below, glabrous and dark brown above; middle and inner bracts linear-lanceolate, long-attenuate; style long-exserted, 2-cleft. Only female plant known.—LABRADOR: Nos. 552 and 553, "K" River, Kangalaksiorvik, July 22, 1931, *E. C. Abbe*; No. 554, Near Island, Seven Islands Bay, Kangalaksiorvik, Aug. 6, 1931, *E. C. Abbe*; No. 556 and 556a, Razorback Harbour, Lat. $59^{\circ} 14'$, Long. $63^{\circ} 23'$, Aug. 17, 1931, *E. C. Abbe*; No. 414, Razorback Mt., Ryans Bay, Aug. 23, 1926, *R. H. Woodworth*; No. 413, North shore of Duck Bight, 1 km. north of Ryan's Bay, Aug. 24, 1926, *R. H. Woodworth*; Port Manvers, Aug. 11, 1910, *E. B. Delabarre*; Okkak, Aug. 1911, *F. C. Hinkley*; no locality, 1865, *Baush*; No. 74, Nain, June 28–July 30, 1928, *C. S. Sewall* (Rawson-MacMillan Subarctic Expedition, 1927–28); No. 415, Head of Main Arm of Ekortarsuk Bay, Aug. 20, 1926, *R. H. Woodworth*; near Hebron, Mentzel (ex Herb. J. Steetz); No. 411, Head of Nachvak Bay, Aug. 17, 1926, *R. H. Woodworth*; No. 412, Kikkertasak Island, Saglek Bay, Aug. 9, 1926, *R. H. Woodworth*.² QUEBEC: No. 120, 087, Port Burwell, Hudson Strait, July 25–28, 1928, *M. O. Malte*. BAFFIN ISLAND: No. 119, 192, Lake Harbour, Aug. 25–26, 1927, *M. O. Malte*.

¹The Labrador localities are all in the Torngat Region.

²All the Labrador localities are in the Torngat region.

Dwarfed specimens growing on exposed rocks often have the stolons poorly developed and may then be taken for *A. congesta*. In the latter, however, the rosette-leaves become glabrate or glabrous above in age; the involucre is uniformly dark brown and the middle bracts broadly lanceolate to ovate, acute.

Sometimes monocephalous specimens are found. Such specimens differ from other monocephalous species as follows: from *A. nitens* in having a dense tomentum, from *A. pygmaea* in the dark-tipped, long-attenuate bracts, from *A. Sornborgeri* in the higher involucre, from *A. burwellensis* in the middle bracts which in the latter are broadly lanceolate to ovate-lanceolate, from *A. angustata* in the same character, and in the rosette-leaves which in the latter become glabrate or glabrous above when mature, and form *A. hudsonica* in the rosette-leaves which in the latter become glabrate or glabrous above in age.

8. *A. arenicola*, n. sp. Planta 1–2 dm. alta; sarmentis prostratis vel adscendentibus, usque ad 4 cm. longis; foliis eorum lineari-ob-lanceolatis, mucronatis, strigoso-tomentosis, supra tarde glabris; foliis caulinis 6–8, distantibus, linearibus, lanatis, inferioribus mucronatis, superioribus apice scarioso, glabro, anguste oblongo; caule lanato; capitulis 3 vel pluribus; involucro ca. 7 mm. alto, basi lanato; squamis mediis intimisque linearibus, longe attenuatis, parte superiore subfuscis; stylo longe exserto, profunde bifido. Planta mascula ignota.

Plant 1–2 dm. high; basal rosettes borne on well developed stolons; their leaves linear-ob-lanceolate, up to 1.5 cm. long, mucronate, dull strigose-tomentose, tardily becoming glabrous above; stem leaves 6–8, distant, linear, lanate, the lower mucronate, the upper tipped with a scarious, glabrous, narrowly oblong appendage; stem lanate; heads normally 3 or more; involucre about 7 mm. high, lanate at base; inner bracts linear, long-attenuate, light brown in the upper part; style long-exserted, deeply 2-cleft.—QUEBEC: No. 120,714 (Nat. Herb. Can.), TYPE, Sandy flat, Port Harrison, east coast of Hudson Bay, Aug. 18–20, 1928, *M. O. Malte*.

Occasionally monocephalous individuals occur. Such specimens are readily distinguished from *A. Sornborgeri* on the tomentum of the rosette-leaves which in the latter is appressed-pannose, not at all strigose, and from *A. burwellensis* on the shape of the bracts. In *A. arenicola* the inner ones are linear and long-attenuate; in *A. burwellensis* they mostly are lanceolate, acute or acuminate.

A northern Labrador species, *A. ungavensis*¹ is somewhat similar to

¹ *A. ungavensis* (Fernald), n. comb. *A. alpina* (L.) Gaertn. var. *ungavensis* Fernald, RHODORA, 18, 1916, 238.

A. arenicola in general appearance. The most conspicuous differences between the two are that in *A. arenicola* the rosette-leaves are dull strigose-tomentose below and become glabrous above very tardily, whereas in *A. ungavensis* the rosette-leaves are silky tomentose below and green and glabrous above practically from the beginning. *A. ungavensis* is known only from the type locality, Stillwater River, about half way between Richmond Gulf, Hudson Bay, and Ungava Bay, Hudson Strait, far to the south of the tree line.

9. *A. SORNBORGERI* Fernald, RHODORA, 18, 1916, 237.—Plant up to about 1 dm. high; basal rosettes on short, prostrate or ascending stolons; their leaves oblanceolate, 6–12 mm. long, 1.5–2 mm. wide, pannose-tomentose, narrowed at summit to the short-mucronate apex; cauline leaves linear, the upper with lanceolate, scarious tips; heads normally solitary; involucre 6–7 mm. high; outer bracts lanceolate, brown, the inner linear to linear-lanceolate, long-attenuate, light brown; pits of the denuded receptacle 60–100, 0.1 mm. broad, about as wide as the blunt-edged intermediate ridges. Only female plant known.—LABRADOR: No. 156, Ramah, Lat. 58° 54', Aug. 20–24, 1897, *J. D. Sornborger*.

10. *A. burwellensis*, n. sp. Planta 5–8 cm. alta; sarmentis prostratis vel adscendentibus, usque ad 3 cm. longis; foliis eorum ca. 1 cm. longis, oblanceolatis, utrinque laxè strigoso-tomentosis, mucronatis; foliis caulinis linearibus, sparse lanatis, apice plano scarioso glabro 1–2 mm. longo; caule lanato; capitulis solitariis; involucre ca. 6 mm. alto, basi lanato, fusco, parte superiore glabro, subfusco; squamis mediis late lanceolatis vel ovato-lanceolatis, acutis, intimis linearibus vel lineari-lanceolatis, acutis vel acuminatis; stylo parum exserto, bifido. Planta mascula ignota.

Plant 5–8 cm. high; basal rosettes borne on prostrate or ascending stolons up to about 3 cm. long; their leaves about 1 cm. long, oblanceolate, loosely strigose-tomentose on both sides, mucronate; cauline leaves linear, sparsely lanate, tipped with a flat, scarious, glabrous, 1–2 mm. long appendage; stem lanate; normally monocephalous; involucre about 6 mm. high, lanate and dark or greenish brown at base, glabrous and pale brown at the top; the middle bracts broadly lanceolate to ovate-lanceolate, acute, the inner ones linear-lanceolate to lanceolate, acute or acuminate; style little exserted, 2-cleft. Only female plant known.—QUEBEC: No. 120,125 (Nat. Herb. Can.), TYPE, Port Burwell, Hudson Strait, July 25–28, 1928, *M. O. Malte*.

11. *A. compacta*, n. sp. *A. candida* Macoun & Holm, Rpt. Can. Arct. Exp. 1913–18, 5, Pt. A., 1921, 21; non Greene, Leaflets 2, 151.—Planta nana, 4–5 cm. alta albo-tomentosa; sarmentis numerosis, dense aggregatis, brevibus, erectis vel suberectis, foliis eorum spathulato-oblanceolatis, utrinque satis strigoso-tomentosis; mucronatis sed mucrone tomento abdito; foliis caulinis laxè tomentosis, apice scarioso

glabro ca. 2 mm. longo, eo foliorum inferiorum lineari-lanceolato, eo foliorum superiorum oblongo; caule lanato-tomentoso; capitulis 3, dense corymbosis; involucre 6-7 mm. alto, basi lanato, atro-olivaceo; squamis interioribus apice late lanceolato, serrulato, satis abrupte acuto; stylo exserto, profunde bifido. Planta mascula ignota.

Dwarf, 4-5 cm. high, white-tomentose, basal rosettes numerous, densely crowded, short, erect or suberect; their leaves spathulately oblanceolate, densely and loosely strigose-tomentose on both surfaces, mucronate, but the mucro completely hidden by the tomentum and the leaves therefore appearing obtuse; cauline leaves loosely tomentose, the lower with linear-lanceolate appendages, the upper with oblong ones, the appendages scarious, glabrous, about 2 mm. long; stem lanate-tomentose; heads 3, crowded, short-stalked; involucre 6-7 mm. high, woolly at base, dark olive; the tips of the inner bracts broadly lanceolate, serrulate, and rather abruptly acute; style exserted, deeply 2-cleft. Only female plant known.—NORTHWEST TERRITORIES, MACKENZIE: No. 91,545, Bernard Harbour. Lat. 68° 47' N., Long. 114° 46' W., *Fritz Johansen*, July 6, 1915, TYPE (Nat. Herb. Can.; part of type also in Gray Herb.).

12. *A. subcanescens* Ostenfeld in sched., n. sp. *A. alpina* Macoun & Holm, Rpt. Can. Arct. Exp. 1913-18, 5, Pt. A, 1921, 21A, pl. xii. fig. 2, non Gaertn. Planta 5-12 mm. alta, subcano-tomentosa; sarmentis brevibus, erectis vel suberectis; foliis eorum satis late spathulato-oblanceolatis, usque ad 15 mm. longis 4 mm. latis, apice rotundatis obscure mucronulatis, mucrone tomento abdito, utrinque strigoso-tomentosis; foliis caulinis linearibus, apice plano, oblongo, scarioso, glabro ca. 2 mm. longo; caule sparse lanato; capitulis 3, dense corymbosis; involucre ca. 7 mm. alto, basi sparse lanato, furvo; squamis interioribus apice clariore, lineari-lanceolato, acuminato vel attenuato; stylo exserto, profunde bifido; planta mascula ignota.

Plant 5-12 cm. high, greyish-tomentose; basal rosettes short, erect or suberect; their leaves rather broadly spathulate-oblanceolate, up to 15 mm. long and 4 mm. wide, rounded and obscurely mucronulate at apex, the mucro hidden by the tomentum, strigose-tomentose on both surfaces; cauline leaves linear, tipped with flat, oblong, scarious, glabrous appendages about 2 mm. long; stem sparsely lanate; heads 3, in a dense corymb; involucre about 7 mm. high, slightly lanate and dark brown at base; tips of the inner bracts lighter, linear-lanceolate, acuminate or attenuate; style exserted, deeply 2-cleft. Only female plant known.—NORTHWEST TERRITORIES, MACKENZIE: No. 91,546, Bernard Harbour, Lat. 68° 45' N., Long. 114° 46' W., *Fritz Johansen*, Aug. 14, 1915, TYPE (Nat. Herb. Can.).

13. *A. LABRADORICA* Nutt., Trans. Am. Philo. Soc. 7, 1841, 406. *A. angustifolia* Elis. Ekman, Svensk Bot. Tidskr., 21, 1927, 53; non *A. angustifolia* Rydb., Bull. Torr. Bot. Club, 26, 1899, 546. *A. Friesiana* Elis. Ekman, Svensk Bot. Tidskr. 22, 1928, 416, as to plant discussed, not as to type, *A. alpina* var. *Friesiana* Trautv.,

Acta Hort. Petrop. 6, 1878, 24.—Plant densely caespitose, from a few cm. to about 2 dm. high; basal rosettes sessile or subsessile, erect or suberect; their leaves up to about 2 cm. long, densely and somewhat silvery strigose-tomentose on both sides, linear-oblongate, mucronulate, but the mucro often hidden by the tomentum; stem and stem-leaves lanate, the latter tipped by a flat scarious, glabrous appendage 1–2 mm. long, or the lowermost mucronate; heads generally 3 in a corymb, when more than in a more open inflorescens; involucre lanate at base, about 7 mm. high; tips of the inner bracts linear to linear-lanceolate, long-attenuate, generally light chocolate brown, but sometimes more or less olivaceous; pappus subrufescent; style exerted, deeply 2-cleft. Only female plant known.—LABRADOR: No. 550, Valley of the Twin Falls, Cape Mugford Peninsula, Lat. $57^{\circ} 50'$, Long. $61^{\circ} 50'$, July 17, 1931, *E. C. Abbe* (Gray). BAFFIN ISLAND: No. 303, Rawson-MacMillan Subarctic Expedition, 1927–28, Frobisher Bay, Aug. 1927, *C. S. Sewall* (Gray); No. 52, MacMillan Expedition, 1922, Seal Harbour, July 31, 1922, *R. Robinson* (Gray); Nos. 119, 194, 119, 189, Pangnirtung, Cumberland Gulf, Aug. 21–22, 1927, *M. O. Malte*; No. 119, 184, Arctic Bay, Admiralty Inlet, Aug. 12, 1927, *M. O. Malte*. MELVILLE ISLAND: Parry's 1st Voyage, 1819–20 (ex Herb. Mus. Brit.) (Gray). NORTHWEST TERRITORIES, KEEWATIN: No. 79, 268, Wager Inlet, Hudson Bay, Lat. $65^{\circ} 15'$, Sept. 8, 1910, *M. O. Malte*.

What *A. labradorica* Nutt. really is, has long been a mystery, and it was first in 1930, when a few fragments from Nuttall were found in the herbarium of the British Museum of Natural History, that its true identity became established. It is a strikingly distinct species, described in 1927 by Mrs. Elizabeth Ekman under the name of *A. angustifolia* (see Fernald, RHODORA, 33, 1931, 224).

Discovering that the name *A. angustifolia* was invalid on account of an earlier *A. angustifolia* Rydb., and having examined Siberian material of *A. alpina* (L.) Gaertn., var. *Friesiana* Trautv., Mrs. Ekman later came to the conclusion that her *A. angustifolia* was identical with Trautvetter's variety. She therefore adopted Trautvetter's name, at the same time raising the variety to specific rank (Sv. Bot. Tidskr. 22, 1928, 416).

A. alpina var. *Friesiana* was described from specimens collected at the Kolyma River in North Siberia by I. Augustinovitsch. Through the kindness of Dr. G. Samuelsson, Stockholm, Sweden, the writer has had an opportunity to examine a specimen of Augustinovitsch's Kolyma collection, deposited in the "Riksmuseum," Stockholm, Sweden. This specimen is not identical with *A. angustifolia* Elis. Ekman. Neither is it identical, as far as the writer has been able to

ascertain, with any other *Antennaria* so far known, from either North America or Greenland. It differs from *angustifolia* in several respects. In the first place, the tips of the inner bracts are broadly lanceolate, acute or acuminate, whereas in *angustifolia* they are linear to linear-lanceolate, long-attenuate. The basal leaves are linear, much narrower than in *angustifolia*, and with a tendency to become glabrate above in age, dull and not at all silvery as in the latter. Furthermore, they are very prominently mucronate, the mucro reaching a length of almost 1 mm.

Lately Mrs. Ekman has realized that her *A. angustifolia* is identical with Nuttall's *A. labradorica*, as is indicated by revision labels on the Stockholm material, written by Mrs. Ekman herself.

A. labradorica was much misunderstood by Greene. When describing *A. neodioica* (Pittonia, **3**, 1897, 184) he says that "there is a possibility that *A. neodioica* may be the plant intended by Nuttall as *A. Labradorica*." This is a wild guess and far from the mark and perhaps dimly realized as unwarranted by Greene himself, for he qualifies his surmise by adding that "our plant does not answer to his (Nuttall's) description."

A few months later, Greene (Pittonia, **3**, 1898, 284) made another unfortunate guess at the identity of Nuttall's *A. labradorica* when he identified it with specimens collected in 1896 by W. Spreadborough at Stillwater River, northern Labrador (now part of the Province of Quebec, Canada). These specimens No. 44,442, Nat. Herb. Can., are stoloniferous, which *A. labradorica* is not, and the broad rosette-leaves are green and glabrous above. Furthermore, they are monocephalous or falsely pleiocephalous (see page 000). The Stillwater River plant was described by Fernald (Rhodora **18**, 1916, 238) under the name of *A. alpina* var. *ungavensis* and raised by the writer to specific rank (page 110).

14. *A. congesta*, n. sp. Planta 2–8 cm. alta; sarmentis sessilibus vel subsessilibus erectis vel suberectis; foliis eorum 1–1.5 cm. longis, lineari-oblongatis, apice abrupte contractis, mucronatis, subtus laxe lanato-tomentosis, superne aetate glabrescentibus vel glabris; foliis caulinis linearibus, subtus lanatis, superne glabris vel glabris, inferioribus mucronatis vel lineari-appendiculatis, superioribus apice scarioso, plano, glabro, oblongo, 1.5–2.5 mm. longo munitis; caule lanato; capitulis plerumque 3, densissime corymbosis; involucro basi lanato, 7–10 mm. alto; squamis mediis lanceolatis interioribus lineari-lanceolatis, longe attenuatis, fere olivaceis apice pallidiore; stylo longe exserto, bifido. Planta mascula ignota.

Dwarf, 2–8 cm. high; basal rosettes sessile or subsessile, erect or suberect; their leaves 1–1.5 cm. long, linear-ob lanceolate, abruptly contracted towards the mucronate apex, loosely lanate-tomentose below, in age becoming glabrate or glabrous above; cauline leaves linear, lanate below, glabrate or glabrous above, the lowermost mucronate or with a linear appendage, the uppermost with a scarious, flat glabrous, oblong appendage 1.5–2.5 mm. long; stem lanate; heads generally 3, very densely congested; involucre lanate at base, 7–10 mm. high; middle bracts lanceolate, and inner ones linear-lanceolate, long-attenuate, almost olivaceous, with paler tips; style long-exserted, 2-cleft. Only female plant known.—QUEBEC: No. 120,118, TYPE; Port Burwell, Hudson Strait, July 25–28, 1928, *M. O. Malte*.

Occasionally occurring monocephalous specimens differ from *A. hudsonica* in having the rosette-leaves very abruptly contracted towards the apex and lanate-tomentose below, in the generally much shorter appendages of the uppermost cauline leaves, and in the broader middle bracts.

15. *A. ANGUSTATA* Greene, *Pittonia* 3, 1898, 284. Dwarf, 2–4 cm. high; basal rosettes sessile or subsessile; erect or suberect; their leaves about 1 cm. long, narrowly oblanceolate, mucronate, strigose-tomentose below; becoming glabrate or even glabrous above, cauline leaves linear-lanceolate, lanate below, glabrous above, the scarious, flat, glabrous, oblong appendage of the upper ones about 3 mm. long; stem lanate, heads solitary; involucre slightly lanate below, 8–9 mm. high; the lowest bracts oblong, rounded at apex, greenish to light brown; middle bracts ovate-lanceolate to lanceolate, acute, irregularly toothed; innermost bracts linear, long-attenuate, often cuspidate, much exceeding the middle ones; both middle and inner bracts dark olivaceous; style included or short-exserted. Only female plant known.—LABRADOR: Nos. 416½ and 416, Head of Ryan's Bay, Aug. 24, 1926, *R. H. Woodworth*; No. 546, Near Island, Seven Islands Bay, Kangalaksiorvik, Lat. 59° 18', Long. 63° 40', Aug. 6, 1931, *E. C. Abbe*; No. 548, Razorback Harbour, Lat. 59° 14', Long. 63° 23', Aug. 17, 1931, *E. C. Abbe*; No. 540 and 540a, "K" River, Kangalaksiorvik, July 22, 1931, *E. C. Abbe*; No. 542, Mt. Tetragona, July 26, 1931, *E. C. Abbe*; No. 539, Rowsell Harbour, Lat. 58° 58', Long. 63° 15', July 20, 1931, *E. C. Abbe*; Nos. 545 and 545a, Peak "19," The Four Peaks, Lat. 59° 25', Long. 63° 55', Aug. 4, 1931, *E. C. Abbe*; Nos. 541 and 541a, Summit of "K-2," Komaktorvik, July 24, 1931, *E. C. Abbe*; Nos. 409 and 410, Nachvak Bay, Aug. 16 and 17, 1926, *R. H. Woodworth*; No. 544, Scree slide from top of Precipice Ridge to Komaktorvik Lake, July 29, 1931, *E. C. Abbe*; No. 410⅓, Head of Main Arm of Ekortarsuk Bay, Aug. 10, 1926, *R. H. Woodworth*; Kangaksiorvik Bay, Sept. 1–10, 1908, *Owen Bryant* (Bryant Labrador Expedition, 1908).¹ QUEBEC: No. 11,248, Cape Chudleigh, Hudson Strait, Aug.

¹ All the above localities are in the Torngat region.

5, 1884, *R. Bell*; No. 62,999, Port Burwell, Hudson Strait, July 29, 1904, *L. E. Borden*; No. 79,271, Port Burwell, Hudson Strait, July 18, 1910, *J. M. Macoun*; Nos. 120,040, 120,079, 120,171, 120,095, Port Burwell, Hudson Strait, July 25-28, 1928, *M. O. Malte*; No. 34,739, Cape Wales, Hudson Strait, about Long. 72°, no date, no collector's name; No. 23,012, opposite Digge's Island, Hudson Strait, about Long. 77°, Aug. 3, 1898, *A. R. Low*. BAFFIN ISLAND: No. 18,744, North shore of Hudson Strait, Aug. 1897, *R. Bell*; No. 119,190, Lake Harbour Aug. 25-26, 1927, *M. O. Malte*; No. 121,370, Pangnirtung Fiord, Cumberland Gulf, July 26, 1924, *J. D. Soper*; Nos. 119,187, 119,188, Pangnirtung, Cumberland Gulf, Aug. 21-22, 1927, *M. O. Malte*.

16. *A. hudsonica* n. sp. *A. glabrata* (J. Vahl) Greene, f. *tomentosa* Elis. Ekman, Sv. Bot. Tidskr, **21**, 1927, 51. Planta 3-15 cm. alta; sarmentis sessilibus vel subsessilibus, erectis; foliis eorum ca. 1 cm. longis, lineari-oblongatis, apice satis gradatim contractis, mucronatis, subtus strigoso-tomentosis, superne aetate glabrescentibus vel glabris; foliis caulinis linearibus, subtus lanatis, superne glabris vel glabris, summis apice scarioso, plano, glabro, oblongo, vel anguste deltoideo, usque ad 4 mm. longo; caule lanato; involucri basi lanato, ca. 7 mm. alto; squamis mediis interioribusque linearibus vel linearilanceolatis, longe attenuatis, apice subfusco; stylo exserto, bifido. Planta mascula ignota.

Plant 3-15 cm. high; basal rosettes sessile or subsessile, erect or suberect; their leaves about 1 cm. long, linear-oblongate, gradually contracted towards the mucronate apex, strigose-tomentose below, in age becoming glabrate or glabrous above; cauline leaves linear, lanate below, glabrate or glabrous above, the scarious, flat, glabrous, oblong or narrowly deltoid appendage of the uppermost one reaching a length of up to 4 mm.; stem lanate; involucre lanate at base, about 7 mm. high; middle and inner bracts linear to linear-lanceolate, long-attenuate, with light brown tips; style exserted, 2-cleft. Only female plant known.—LABRADOR: No. 417, Head of Main Arm of Ekortarsuk Bay, Aug. 20, 1926, *R. H. Woodworth*; No. 418, Razorback Mt., Ryan's Bay, Aug. 23, 1926, *R. H. Woodworth*; No. 547, East Bay, Ikordlearsuk, Lat. 59° 55', Long. 64° 24', Aug. 12, 1931, *E. C. Abbe* and *N. Odell*; No. 549, Near Island, Seven Islands Bay, Kangalaksiorvik, Aug. 6, 1931, *E. C. Abbe* (Gray). QUEBEC: Nos. 119,185 (TYPE!), 119,186, Port Burwell, Hudson Strait, Aug. 30, 1927, *M. O. Malte*; No. 120,171, Port Burwell, Hudson Strait, July 25-28, 1928, Nos. 120,975 and 120,993, Wolstenholme, Hudson Strait, Aug. 26, 1928, *M. O. Malte*; Smith Island, east coast of Hudson Bay, Aug. 24, 1928, *M. O. Malte*. BAFFIN ISLAND: Nos. 119,193, 119,191, Lake Harbour, Aug. 25-26, 1927, *M. O. Malte*; Nos. 120,332, 120,344, 120,382, Cape Dorset, Aug. 4, 1928, *M. O. Malte*. NORTHWEST TERRITORIES, KEEWATIN: No. 120,507, Chesterfield Inlet, Aug. 8-11, 1928, *M. O. Malte*.

The writer believes that this species is identical with *A. glabrata* (J. Vahl) Greene f. *tomentosa* Elis. Ekman, a Greenland plant, a specimen of which has kindly been presented by Mrs. Ekman. The name *tomentosa* as given to a form of *A. glabrata* is of course quite appropriate but when applied to a species of such a genus as *Antennaria* it certainly is not. The writer has therefore, with reluctance, when raising *A. glabrata* f. *tomentosa* to specific rank, decided to abandon Mrs. Ekman's name and select another one, a procedure against which there is no international rule. As the species is widely distributed in the Hudson Strait and Hudson Bay regions, the name *hudsonica* has been chosen.

NATIONAL MUSEUM OF CANADA

A NEW PRIMULA FROM THE GRAND CANYON OF THE COLORADO

M. L. FERNALD

(Plate 282)

WHEN I studied¹ the North American species of *Primula* § *Farinosae* in 1928, the most southern member of the section then known in North America was the very distinct and highly localized *P. specuicola* Rydb., of cliffs of the Colorado River and its tributaries in southeastern Utah. Additional specimens have subsequently come to hand, including excellent flowering material supplied through the late Dr. Rydberg, but the range of the species has not been extended outside of the Colorado River area of Utah.

Shortly after my publication on the group Mr. Francis Welles Hunnewell collected on the North Rim of the Grand Canyon of the Colorado in Coconino Co., Arizona, a plant with the leaves much as in *Primula specuicola*. This, quite naturally, was temporarily identified with the plant from farther up the River; but now, a careful checking of its characters shows the plant from the Grand Canyon to be a second localized species with which it is a great pleasure formally to associate the name of its discoverer:

PRIMULA (§ FARINOSAE) **Hunnewellii**, sp. nov. (tab. 282), planta *P. specuicolam* simulans; foliis spathulatis membranaceis subtus plus minusve farinosis 4–9 cm. longis 0.7–1.5 cm. latis sinuato-dentatis apice rotundatis; scapo filiformi glabro nitido 5.5–11.5 cm. alto;

¹ RHODORA, xxx. 59–77, 85–104 (1928).